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PUBLISHING FOR LEARNED SOCIETIES: THE SECRET LIFE OF THE SCHOLARLY PUBLISHER

DAVID NICHOLSON
Wiley-Blackwell
9600 Garsington Road
Oxford OX4 2DQ, UK
david.nicholson@oxon.blackwellpublishing.com

Abstract. Wiley-Blackwell was formed in February 2007 as a result of the acquisition of Blackwell Publishing Ltd. by John Wiley & Sons, Inc. and the merger between Blackwell and Wiley's Scientific, Technical, and Medical business. Wiley-Blackwell publishes approximately 1,250 scholarly peer-reviewed journals including *Monthly Notices of the Royal Astronomical Society* and *Astronomische Nachrichten*, and has relationships with over 800 learned societies. The "secret life" of the article's title refers to the two broad areas of activity we undertake for our society partners, namely practical assistance and strategic advice. One of our goals at Wiley-Blackwell is to set the standard for both areas, and this article illustrates how we are doing this with a series of tangible examples.

1. Introduction

Astronomy represents a reasonably homogeneous academic community, one where the process of scholarly communication is perhaps more complex and dynamic than elsewhere. Much of this complexity and change has been driven by the transformative impact of the internet. As with many areas, the key participants in astronomy include learned societies, for example the Royal Astronomical Society, publishers such as Wiley-Blackwell, authors and readers, librarians, and a group of stakeholders in the form of funding agencies and legislative bodies, who are becoming increasingly engaged. For scholarly publishers the challenges of meeting the needs of this diverse group and changing environment have never been more acute.

2. The Secret Life of the Scholarly Publisher

So, how should and how are publishers responding, not just in astronomy but across the full spectrum of science? I have taken a simple approach of characterising this in two ways. First, publishers have always offered learned societies a range of practical services to assist them in the production and dissemination of their journals. These services have included the "traditional" core activities such as copyediting, manufacturing, distribution, marketing, library sales and technological innovation. Publishers have been able to offer these services with the benefit of long experience drawn from many different subject areas and economies of scale, with detailed understanding of customer needs as well as those of scientists. Recent years have seen the provision of global solutions in areas such as content management and technology provision. These services have enabled learned societies to meet the historical needs of scholars namely registration, dissemination, archiving and certification[1]. These needs have remained more or less constant, with an increasing emphasis now being placed on speed of review and publication. Much of the investment and development in online delivery has been undertaken by the major players in academic publishing, with services such as Wiley Interscience[2] and Blackwell Synergy[3] allowing readers to access a wide and deep range of content from journals, books and reference works.

3. New Areas of Practical Assistance

The need for practical assistance should not, however, stop with these core functions, and Wiley-Blackwell has pioneered activity in three inter-related areas which are also linked to both the global growth in article output and the increasing involvement of new stakeholders.

4. Peer review

The peer review process is often criticised as being an imperfect model but it continues to be an important engine in scholarly communication. It helps to deliver the "minutes of science" (a good description of journal articles coined by Jan Velterop) and like all engines it requires care and attention. Part of this attention has been delivered by Wiley-Blackwell through the widespread provision of technical solutions such as Manuscript Central, and training for editorial office teams. The Association of Learned Professional

[1]Henry Oldenberg, Secretary of the Royal Society and Founder of the Philosophical Transations of the Royal Society (1665).

[2]`http://www3.interscience.wiley.com/aboutus/`

[3]`http://www.blackwell-synergy.com/`

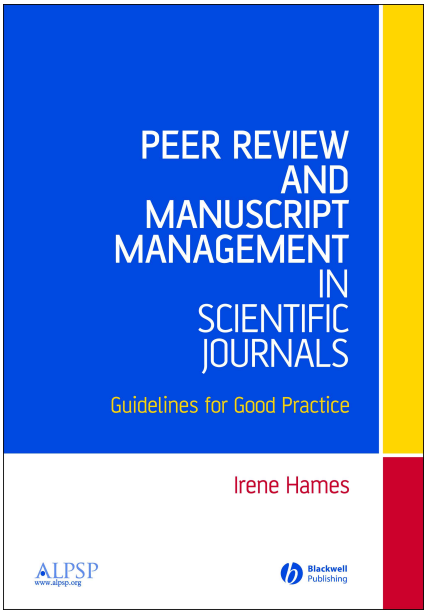

Figure 1.

and Society Publishers (ALPSP) is often asked for practical advice in this area, and with the volume of articles submitted to (most) journals growing every year, it seems clear that there is increasing pressure on the system. In response to this need for support, ALPSP and Blackwell Publishing worked with Irene Hames (Managing Editor of *The Plant Journal*) to publish *Peer Review and Manuscript Management in Scientific Journals* in March 2007 (Fig. 1).

The book sets out guidelines for good practice, creates "Golden Rules", and acts as a "how to" guide for novice and experienced editors alike. The response to-date has been positive including this quote from Science:

> "In the midst of the often overheated current debates about the effectiveness of peer review in science publishing, this book is an oasis of calm. I know no better guide for editors and scientists on how to get the very best out of the peer review system."
>
> (Andrew Sugden, International Managing Editor, *Science*)

One of the book's golden rules, "Everyone involved in the peer-review process must always act according to the highest ethical standards", leads into the second area of practical assistance that I want to address, that of publication ethics in a broader context.

5. Publication Ethics

Publishers and societies are quite clearly part of the "everyone" and in our view have a responsibility to foster ethical behaviour that also goes beyond the peer review process. With this need in mind and with the goals of encouraging discussion and supporting change through practical guidance, a number of colleagues collaborated to publish a series of Best Practice Guidelines in January 2007[4]. In publishing them, our goal has been to support our society partners and editors in their ability to deal with these complicated and occasionally problematic issues. The Guidelines summarise Wiley-Blackwell's position on the major ethical principles of academic publishing under five key themes:

1. Transparency
   - Who funded the work, who did it, has it been published before (prior publication)? Editors should be clear on their requirements across these areas as a matter of editorial policy, and authors have a responsibility to clarify sources of funding. This theme also addresses what we do to ensure appropriate acknowledgement of all authors, and provides guidance on how to manage multiple-authorship, a common issue across many areas of science and medicine. For those working in the latter, the guidelines also provide assistance on registering clinical trials.
2. Research Integrity
   - This theme addresses the rights of research participants, patients and experimental animals, and particularly the need for patient or subject confidentiality. In addition the notion of research misconduct is discussed.
3. Responsible Publication Practices
   - This theme explores the mechanisms available following publication of work that features a confirmed case of misconduct i.e. errata, retractions, and expressions of concern, and provides a series of flowcharts to aid decision making.
4. Editorial Standards and Processes
   - Independence and conflicts of interest. This theme complements the Hames book by providing an overview of peer review offering best practice guidance in a number of areas including publishing

[4]Graf, C., Wager, E., Bowman, A. et al. 2007, Best Practice Guidelines on Publication Ethics: A Publisher's Perspective, *International Journal of Clinical Practice* **61** (s152):126 and reproduced at:
`http://www.blackwellpublishing.com/publicationethics/?site=1` .

work from the journal's own editorial team, and how to deal with third-party interests.

5. Ownership of Ideas and Expression
   - Plagiarism and protection of intellectual property. Core to this theme is the notion that all journals have the right to expect that any manuscript submitted is indeed the author's/authors' own work. Publishers in general, and Wiley-Blackwell in particular, have a significant role in helping our society partners manage intellectual property issues.

"Setting the standard" is an appropriate way of describing this approach, and is related to the next and final area of practical assistance described in my paper, that of the public understanding of science. As well as facilitating more and better access to scientific literature for the research community, the internet has also created opportunities for what I like to call "sound bite science". Results and conclusions from a journal article can be repackaged in the popular press and go on to achieve instant global dissemination. The premise here is that robust peer review and ethical practice underpin good science and in turn support the credibility of science in the public arena. And, as we will see later, funding agencies are often motivated by a need to foster better public awareness of the work they do.

6. Public Understanding

Wiley-Blackwell has been working closely with two projects to develop the notion of public outreach for our journals and society partners. The first is "Sense about Science[5]", an initiative launched in 2002 and formalised as a charitable trust in 2003. The trust's principal focus is the general public and its objectives are summarised as follows:

- Respond to inaccuracies in public claims about science, medicine, and technology
- Promote the benefits of scientific research to the public
- Help those who need expert help contact scientists about issues of importance
- Brief non-specialists on scientific developments and practices

Specific projects undertaken by the trust include public meetings on topics such as stem cell research, and briefings on specific activities including the value of peer review.

The second project is the Science Media Centre[6], the primary focus of which is to support and facilitate responsible journalism. This is done

[5] http://www.senseaboutscience.org.uk/
[6] http://www.sciencemediacentre.org/

through expert briefings for journalists and media training for scientists as well as workshops and meetings. Recent press releases have covered diverse topics ranging from climate change ("Scientists and engineers react to the IPCC: Working Group III report, *Mitigation of Climate Change* "), to wi-fi ("Scientists discuss Wi-Fi and its proposed adverse health effects, in advance of BBC's Panorama programme to be screened on Monday 21 May 2007").

The key message in discussing these three new areas of practical assistance is that the role of scholarly publisher has evolved tremendously over the last decade. It is important that this evolution continues, and that we offer new services to our partners in the scholarly communication process.

7. Strategic Advice

The second part of this paper deals with how publishers have responded to the changing environment for scholarly communication and specifically how we are now at the (very) sharp end of providing strategic advice to learned society partners over the future of their publishing activities. I have assumed that readers will be familiar with the spectrum of opinion on Open Access and have deliberately avoided a rehash of the principles that attach to it. Established publishers are fully engaged with the debate and are addressing the question of sustainability through evaluation of the alternative (or supplementary) business model. In addition we now work much more globally than perhaps was the case a decade or so ago. This sense of taking a global approach is perhaps a good place to start developing the second part of our secret life.

8. The Scholarly Communication Environment

So, what is the global picture for research and development (R&D), and for learned journals? Expenditure on R&D grew in real terms by c. 4.5% in OECD areas[7] from 1990-2001. The global population of researchers and their output of research articles is also growing. The journal publishing business itself continues to grow with both existing and new players launching new titles on a regular basis. Estimates of the number of active, peer-reviewed journals range from c. 16,000 to c. 25,000. Within this global trend there is now real growth in terms of article output from Asian countries. Managing this rapid growth will be one of the major opportunities and challenges for all those involved in scholarly communication over the next decade.

[7] *Science and Technology Statistical Compendium 2004*, published by the OECD, at `http://www.oecd.org/dataoecd/17/34/23652608.pdf` .

This macro-level picture is positive. It suggests growth in content and growth in audience numbers and demand. The situation becomes more complicated at the level of the different stakeholder communities and this is where publishers including Wiley-Blackwell, are now making strenuous efforts to understand their respective needs and to help guide society partners.

9. Funding Agencies and Legislative Bodies

I have already mentioned the increasing involvement of funding agencies in the scholarly communication process. In many cases these bodies are now demanding access to the outputs of the research that they have funded, and the right to disseminate these outputs to the public. The Wellcome Trust has been a particularly strong advocate of these rights in the biomedical arena and has made concessions to the notion of covering the costs of publication. Closer to home for the astronomy community is the language used by the Science and Technology Facilities Council (formed by the merger of PPARC and CCLRC in April 2007) in their mission statement[8]:

- Generate public awareness
- Communicate research outcomes
- Encourage public engagement and dialogue
- Disseminate knowledge
- Provide advice

This language is being mirrored by other funding agencies, particularly those in Europe and North America. In response publishers have begun to engage with these organisations and the arrangements made by both Elsevier and John Wiley & Sons with the Howard Hughes Medical Institute[9] serve as a good example of a relationship that may become more common in the future. A significant part of these relationships will be underpinned by a conceptual but nonetheless real debate about just what funding agencies have rights to. The late Peter Banks summed this up neatly by addressing the notion of these rights being driven by expenditure of tax dollars:

> "Tax payers have the right to access research they have already paid for. Indeed they do. They can look at exactly what they have paid for – which is research up to the stage of pre-prints. They have not, however, paid for peer-review, copy editing, composition or any other value that a publisher adds."

For "publisher" read both organisations such as Wiley-Blackwell and the learned societies that they serve. This notion of adding value is a key one. It is important to recognize the value added to raw research data at

[8] http://www.scitech.ac.uk/About/Miss/OurMission.aspx
[9] http://www.hhmi.org/news/20070626.html

various stages of publishing process – the value of the author's work in shaping a story around the data, the value of feedback obtained in the peer review process, and the value added by the journal through its name, reputation, and audience, and the value, intellectual and commercial of the final, published version.

10. Academics and Librarians

If funding agencies represent a newly engaged participant, then two of the largest and most established stakeholders in scholarly communication are the academics themselves, who as act as authors, editors, reviewers and readers, and librarians, who continue to be the main purchasers of journals. A recent report[10] commissioned by the Research Information Network and Consortium of Research Libraries examined the roles and relationships of these groups. The report confirmed the ongoing importance of journals and the overwhelming impact that online availability has made on the ability of researchers to locate and retrieve articles relevant to their field of study. The report found relatively little interest or awareness amongst the academic community in general of other digital options such as institutional repositories. It is important to recognise however that the astronomy and broader physics community are already active in the repository "space" and I will explore the implications that this has for journals in a moment.

What about librarian attitudes? Recent studies by Mark Ware[11] on behalf of ALPSP and Chris Beckett and Simon Inger[12] for the Publishers Research Consortium (PRC) have explored the threat, real or imagined, posed by repositories. The Ware report found that a significant proportion of librarians, 53% currently but rising to 81% in the next five years, saw availability of articles in open repositories as playing an important or very important role in determining cancellations. The PRC report showed a strong preference for the peer-reviewed article (a good thing for scholarly communication) but suggested that in some circumstances the author's accepted manuscript could be as acceptable as the published version, at least for librarians if not for readers. The findings from both have been used to fine tune policies on embargo periods and version control aimed at balancing demand for availability with the need for sustainability.

[10]Researchers' Use of Academic Libraries and their Services, April 2007 `http://www.rin.ac.uk/files/libraries-report-2007.pdf` .

[11]ALPSP survey of librarians on factors in journal calculations, ISBN 978-0-907341-31-4, Mark Ware, March 2006.

[12]Self-archiving and journal subscriptions: co-existence or competition? An International Survey of Librarians' Preferences, `http://www.publishingresearch.net/documents/Self-archiving_report.pdf` .

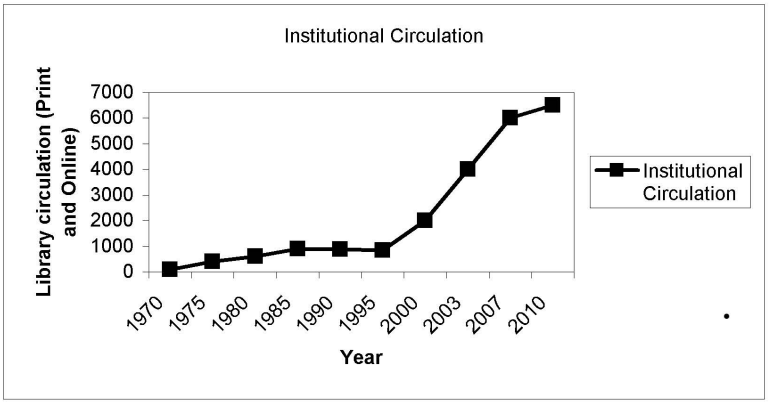

Figure 2. Journal institutional circulation growth, print only (1980) to print and online (present day) for a typical science journal at Wiley-Blackwell.

11. Publishers

I started this second part of the secret life story with the premise that publishers have developed an evidence-based approach to the role of strategic partner. Part of this evidence is the demonstrable effect that online platforms and sales models have had on the availability of journals. Fig. 2 quantifies this transformation for a typical science journal at Wiley-Blackwell.

At the same time as this conventional model of subscription or licence-based access is seen to be thriving (with philanthropic initiatives for developing countries such as HINARI, AGORA and OARE now part of the landscape), a variety of "pay-to-make Open Access" options have been developed, linked to the moral and financial support for Open Access amongst some funding agencies. (For the purposes of this article I am focusing on the approach of major publishers and societies rather than "pay-to-publish Open Access" publishers such as Public Library of Science or BioMedCentral.)

One such option is OnlineOpen launched by Blackwell Publishing in February 2005. Authors may choose to make their article freely available on publication for a fee ($2600 for articles published in 2007). The first articles published under the experiment appeared in November 2005 and around 300 are expected to appear in 2007 spread amongst 100 or so participating journals. This steady trickle may increase as the machinery (connecting authors, funding agencies, and journals) for making money available for articles to be made openly accessible starts to work more effectively. It is fair to say that at the moment there is no particular pattern beyond a sense

that it is well-funded authors who are using the facility.

I have touched on the notion of different versions of articles already, and publishers have started to explore the relationships between pre-prints, authors' accepted manuscripts, and published versions. One question is whether the traditional core service of copyediting still adds value. Colleagues Edward Wates and Bob Campbell published an article[13] in *Learned Publishing* in early 2007 which does indeed suggest that there is value in this function and in the role of the published version. Follow-up work on examining the potential differences between published versions and those self-archived by authors is being undertaken. Early indications are that it will be hard to rely on self-archived versions as reliable "minutes of science", and that peer-reviewed journals will continue to play an essential part of the process. Even where there is an established culture of archiving, as in astronomy, a recent study[14] of pre-print and journal article usage found that most potential users have access to journals, and that what they actually want to use in the long term are the published version of journal articles rather than pre-prints.

The main strategic issues are engagement and an assessment of how best to meet all stakeholders' needs within the framework of a viable, sustainable and scaleable model that rewards the maintenance of quality and enables investment in future products and services. Publishers such as Wiley-Blackwell are well represented in our trade associations and on industry and government committees, so we are able to offer societies exactly the sort of engagement and scenario-planning that is required to formulate strategies going forward.

12. The Future

So, what does the future hold for scholarly publishers and the societies they serve? There are some common themes running through most fields of science that I encounter. We are in a period of accelerating change in research culture, capabilities and communication. We are all seeking ways of adding value and this is often articulated in the need to manage ever greater volumes of data and linkage between journal articles and that data, and the need to educate a new generation of authors. There are new projects about "new science", with the National Virtual Observatory in the USA one example that is relevant to the astronomy community. As we come

[13]Author's version vs. publisher's version: an analysis of the copy-editing function, Wates, E. & Campbell, R., *Learned Publishing* **20/2** (April 2007), 121-129(9).

[14]E-prints and journal articles in astronomy: a productive co-existence, Henneken, E.A., Kurtz, M.J., Eichhorn, G., Accomazzi, A., Grant, C.S., Thompson, D., Bohlen, E., Murray, S.S., Ginsparg, P. &Warner, S., *Learned Publishing* **20/1** (January 2007) 16-22(7).

to terms with these new opportunities it is also clear that most journals are thriving. Open access publishing, whether using the dedicated "pay-to-publish" or the optional "pay-to-make-OA model", or some other variant, seems to be here to stay (the debate is about the size of the role it will play) and funding agencies will continue to increase their involvement in publishing. Given this outlook, it seems certain that the secret life of the scholarly publisher must continue to evolve, and that the role of the journal as an essential filter of quality and impact will continue to be of primary importance.

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